

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT (PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 13664-40PCT	<div style="display: flex; justify-content: space-between;"> <div>FOR FURTHER ACTION</div> <div>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div> </div>	
International application No. PCT/CA2004/001409	International filing date (<i>day/month/year</i>) 26 July 2004 (26-07-2004)	(Earliest) Priority date (<i>day/month/year</i>) 25 July 2003 (25-07-2003)
Applicant CONJUCHEM, INC. ET AL		
This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.		
<p>This international search report consists of a total of <u>8</u> sheets.</p> <p><input checked="" type="checkbox"/> It is also accompanied by a copy of each prior art document cited in this report.</p> <p>1. Basis of the report</p> <p>a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p style="padding-left: 40px;"><input type="checkbox"/> the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).</p> <p>b. <input checked="" type="checkbox"/> With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.</p> <p>2. <input checked="" type="checkbox"/> Certain claims were found unsearchable (See Box II).</p> <p>3. <input type="checkbox"/> Unity of invention is lacking (See Box III).</p> <p>4. With regard to the title.</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p style="padding-left: 40px;"><input type="checkbox"/> the text has been established by this Authority to read as follows :</p> <p>5. With regard to the abstract.</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p style="padding-left: 40px;"><input type="checkbox"/> the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.</p> <p>6. With regard to the drawings,</p> <p>a. The figure of the drawings to be published with the abstract is Figure No.</p> <p style="padding-left: 40px;"><input type="checkbox"/> as suggested by the applicant.</p> <p style="padding-left: 40px;"><input type="checkbox"/> As selected by this authority, because the applicant failed to suggest a figure.</p> <p style="padding-left: 40px;"><input type="checkbox"/> As selected by this Authority, because this figure better characterizes the invention.</p> <p>b. <input checked="" type="checkbox"/> None of the figures is to be published with the abstract.</p>		

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Box No. 1

Nucleotide and/or amino acid sequence(s) (Continuation of Item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - ☒ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☒ in written format
 - ☒ in computer readable form
 - c. time of filing/furnishing
 - ☐ contained in the international application as filed
 - ☐ filed together with the international application in computer readable form
 - ☒ furnished subsequently to this Authority for the purposes of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/CA2004/001409**Box No. II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. ☒ Claims Nos. : 24-32
because they relate to subject matter not required to be searched by this Authority; namely:

Claims 24-32 are directed to methods of treatment of the human/animal body. (Article 17(2)(a)(i) and Rule 39.1(iv) PCT)
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :
3. ☐ Claims Nos. :
because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observation where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos. :
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos. :

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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Box IV

Text of the abstract (Continuation of Item 5 of first sheet)

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A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷ C07K-14/62, C07K-14/765, A61P-3/10, C07K-1/113, A61K-38/28, A61P-5/5

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC⁷ C07K-14/62

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base, and, where practicable, search terms used)
Canadian Patent Database; EPOQUE; DELPHION; ESP@CENET; CA PLUS
Key words: "insulin derivative"; "insulin analog"; "insulin analogue"; "insulin conjugate"; "long lasting"; "protracted"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95 05187 A1 (UNITED MEDICAL & DENTAL SCHOOLS OF GUYS AND ST. THOMAS' HOSPITALS) 23 February 1995 whole document	1, 2, 7, 16-23, 33-38
Y		3-6, 8-15
X	CA 2334859 A1 (KINGS COLLEGE LONDON; DEUTSCHES WOLFFORSCHUNGS INSTITUT) 23 December 1999 whole document	1-3, 7, 16, 18, 19, 21-23, 33-38
Y		4-6, 8-15, 17, 20
X	JONASSEN ET AL. "Fatty acid acylated insulins display protracted action due to binding to serum albumin." In: PEPTIDE SCIENCE: PRESENT AND FUTURE, PROCEEDINGS OF THE INTERNATIONAL PEPTIDE SYMPOSIUM, 1 ST KYOTO, NOV. 30, 1997, (1999), MEETING DATE 1997, pages 674-677. EDITOR: SHIMONISHI, YASUTSUGA. PUBLISHER: KLUWER DORDRECHT, NETH. whole document	1-3, 7, 16-23, 33-38
Y		4-6, 8-15

Further documents are listed in the continuation of Box C.

Patent family members are listed in annex.

* Special categories of cited documents :	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed	"&"	

Date of the actual completion of the international-type search
10 November 2004 (10-11-2004)Date of mailing of the international-type search report
19 November 2004 (19-11-2004)

Name and mailing address of the ISA/

Authorized officer

CA 2334859-2004 (910) 007.6614

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BAUDYS ET AL. "Extending insulin action <i>in vivo</i> by conjugation to carboxymethyl dextran." BIOCONJUGATE CHEMISTRY. 1998, vol. 9, pages 176-183 whole document	1-3, 7, 16, 18, 19, 21-23, 33-38
Y		4-6, 8-15, 17, 20
Y	CA2363712 A1 (CONJUCHEM INC.) 23 November 2000 whole document	1-23, 33-38
Y	UCHIO ET AL. "Site specific insulin conjugates with enhanced stability and extended action profile." ADVANCED DRUG DELIVERY REVIEWS 35 (1999), vol. 35(2,3), pages 289-306 whole document	1-23, 33-38
Y	US 6323311 B1 (LIU ET AL.) 27 November 2001	1-23, 33-38
Y	US 3868357 A (SMYTH ET AL.) 25 February 1975	1-23, 33-38
Y	US 3868356 A (SMYTH ET AL.) 25 February 1975	1-23, 33-38
P,X	THIBAUDEAU ET AL. "Development of novel DAC TM insulin analogues with extended pharmacodynamic profiles." AMERICAN DIABETES ASSOCIATION 64 TH SCIENTIFIC SESSIONS. ABSTRACT 488-P, June 4-8, 2004, ORLANDO, FLORIDA	1-23, 33-38

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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<u>Patent document cited</u>	<u>Publication Date</u>	<u>Family Members</u>	<u>PublicationDate</u>
WO9505187	23-02-1995	AT147043T T	15-01-1997
		AT148311T T	15-02-1997
		AU688288 B2	12-03-1998
		AU4483489 A	14-05-1990
		AU5569594 A	22-06-1994
		BR9307514 A	31-08-1999
		CA2040851 A1	20-10-1992
		CA2149118 A1	09-06-1994
		DE68927613D D1	13-02-1997
		DE68927613T T2	24-04-1997
		DE69307922D D1	13-03-1997
		DE69307922T T2	05-06-1997
		DK670685T T3	24-02-1997
		EP0439504 A1	07-08-1991
		EP0670685 A1	13-09-1995
		EP0725648 A1	14-08-1996
		EP1234586 A2	28-08-2002
		ES2100034T T3	01-06-1997
		GB2224008 A	25-04-1990
		GB2276820 A	12-10-1994
CA2334859	23-12-1999	AU8029798 A	05-01-2000
		CA2334859 A1	23-12-1999
		EP1086130 A1	28-03-2001
		JP2002518408T T	25-06-2002
		WO9965941 A1	23-12-1999
CA2363712	23-11-2000	AT226593T T	15-11-2002
		AT252601T T	15-11-2003
		AU754770 B2	21-11-2002
		AU761591 B2	05-06-2003
		AU764103 B2	07-08-2003
		AU765753 B2	25-09-2003
		AU4774800 A	05-12-2000
		AU4855500 A	05-12-2000
		AU5027100 A	05-12-2000
		AU5139300 A	05-12-2000
		BR0010750 A	26-02-2002
		BR0010757 A	19-02-2002
		CA2363712 A1	23-11-2000
		CA2372338 A1	23-11-2000
		CA2373252 A1	23-11-2000
		CA2373680 A1	23-11-2000
		CN1350548T T	22-05-2002
		CN1351611T T	29-05-2002
		DE60000665D D1	28-11-2002
		DE60000665T T2	26-06-2003
		DE60006100D D1	27-11-2003
		DE60006100T T2	01-07-2004
		DK1180121T T3	01-03-2004
		EA3922 B1	30-10-2003
		EP1105409 A2	13-06-2001
		EP1171582 A2	16-01-2002
		EP1179012 A1	13-02-2002
		EP1180121 A1	20-02-2002
		EP1264840 A1	11-12-2002
		ES2185595T T3	01-05-2003
		ES2209885T T3	01-07-2004
		JP2002544287T T	24-12-2002
		JP2003500341T T	07-01-2003
		JP2003508350T T	04-03-2003
		JP2003527312T T	16-09-2003
		NO20015584 A	03-01-2002
		PT1180121T T	31-03-2004

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Continuation of Form PCT/ISA/210 (patent family annex):

		SI1180121T T1	30-04-2004
		US6329336 B1	11-12-2001
		US6514500 B1	04-02-2003
		US6593295 B2	15-07-2003
		US2003108567 A1	12-06-2003
		US2003108568 A1	12-06-2003
		US2004127398 A1	01-07-2004
		US2004138100 A1	15-07-2004
		WO0069900 A2	23-11-2000
		WO0069902 A1	23-11-2000
		WO0069911 A1	23-11-2000
		WO0070665 A2	23-11-2000
		ZA200106676 A	19-07-2002
		ZA200109110 A	13-06-2002
US6323311	27-11-2001	AU7830400 A	24-04-2001
		US6323311 B1	27-11-2001
		WO0121197 A1	29-03-2001
US3868357	25-02-1975	AT68372 A	15-02-1977
		AT339512B B	25-10-1977
		AU472582 B2	27-05-1976
		AU3821372 A	26-07-1973
		BE778538 A1	26-07-1972
		CA980765 A1	30-12-1975
		CH547777 A	11-04-1974
		DE2204053 A1	17-08-1972
		FR2123524 A5	08-09-1972
		GB1381273 A	22-01-1975
		GB1381274 A	22-01-1975
		IE36225 B1	15-09-1976
		NL7201179 A	01-08-1972
		SE382452 B	02-02-1976
		US3868356 A	25-02-1975
		US3868357 A	25-02-1975
		ZA7200277 A	27-09-1972
US3868356	25-02-1975	AT68372 A	15-02-1977
		AT339512B B	25-10-1977
		AU472582 B2	27-05-1976
		AU3821372 A	26-07-1973
		BE778538 A1	26-07-1972
		CA980765 A1	30-12-1975
		CH547777 A	11-04-1974
		DE2204053 A1	17-08-1972
		FR2123524 A5	08-09-1972
		GB1381273 A	22-01-1975
		GB1381274 A	22-01-1975
		IE36225 B1	15-09-1976
		NL7201179 A	01-08-1972
		SE382452 B	02-02-1976
		US3868356 A	25-02-1975
		US3868357 A	25-02-1975
		ZA7200277 A	27-09-1972